

Densities of the Endangered Wood Stork on the floodplain

Expectation:	Mean density of Wood Storks (<i>Mycteria americana</i>) in floodplain wetlands will increase to $\geq 0.55/\text{km}^2$ per survey .
Author:	Stefani L. Melvin, South Florida Water Management District
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Relevant Endpoints:	Sociopolitical - Number of Birds Sociopolitical - Threatened and Endangered Species Sociopolitical - Aesthetic Values Restoration - Biological Integrity - Population Abundance Restoration - System Functional Integrity - Habitat Quality Restoration - System Functional Integrity - Habitat Use
Baseline Condition:	Based on monthly aerial surveys from May 1996 through December 1998, mean density of Wood Storks is $0.26/\text{km}^2$ per survey. Shortened hydroperiod and disconnection of the river and floodplain have eliminated foraging habitat and availability of prey for Wood Storks in the Kissimmee River system.
Reference Condition:	<p>No quantitative historic information is available on Wood Stork use of the Kissimmee River floodplain. Reports of Audubon Wardens (National Audubon Society 1936-59) are qualitative, but indicate that Wood Storks were commonly sighted using the Kissimmee River for foraging and nesting. Groups of up to 3000 birds were recorded, but counts ranged between 1-200 during most surveys.</p> <p>Toland (1990) used Pool B to describe 'restored' habitat conditions in the Kissimmee River. Pool B was the site of a small scale demonstration project that included seasonal stage manipulations and placement of three weirs across the canal to direct flow through adjacent river channels (Toth 1991). The floodplain adjacent to these river channels receives more inundation than other parts of the channelized system. Because the river and floodplain are connected, fish movement onto the floodplain is more likely, thereby improving habitat for foraging Wood Storks. Toland (1990) found mean Wood Stork density of $0.55/\text{km}^2$ for surveys from February 1987 through May 1988. No variability was reported.</p> <p>Because foraging habitat for Wood Storks is expected to increase with restoration of Kissimmee floodplain wetlands, Wood Stork densities comparable to those found by Toland (1990) are likely.</p>
Mechanism for Achieving Expectation:	Restoration of flooding regimes and natural hydroperiods will encourage re-establishment of floodplain wetlands (Toth 1991, Toth et al. 1995), which provide foraging habitat for Wood Storks. Restoration of river-floodplain interaction and inundation of floodplain wetlands will increase production of forage fishes and availability of juvenile game fishes (Trexler 1995). Reestablished river-floodplain connectivity also will allow large fishes to utilize the floodplain, thereby becoming available to foraging Wood Storks. Greater prey abundance and increased habitat availability will result in greater use of the floodplain by foraging Wood Storks. Shallow

floodplain wetlands will provide the most suitable foraging conditions, allowing Wood Storks to access fishes of all sizes, especially during seasonal drydowns (Kushlan 1976).

The breeding center of the Florida Wood Stork population seems to be moving north from the Everglades (Frederick and Ogden 1997), with greater numbers nesting in central Florida than earlier this century. Improved foraging conditions in the Kissimmee River floodplain will likely contribute to increased use of nearby breeding colonies. In addition, breeding colonies are likely to reestablish in areas such as Chandler Slough. Wood Storks from all of these colonies will forage in restored floodplain wetlands. Therefore, increased breeding birds will lead to a greater number of birds that may use the Kissimmee River floodplain.

Adjustments for
External Constraints:

Wood Stork populations in South Florida have been declining since the 1900's due to human impacts and habitat loss (Ogden 1994). Therefore, the number of individuals using the Kissimmee floodplain will probably never reach pre-channelization levels.

Means of Evaluation:

Standardized aerial surveys covering at least 15% of the floodplain will be conducted monthly. These data will be collected along randomly selected transects drawn from the same set of transects that was used during baseline sampling. Wood Stork density will be estimated using the ratio method for unequal plot sizes (Jolly 1969). At least 24 surveys will be used to determine if mean annual Wood Stork density meets the expected level.

Time Course:

Wood Storks are tactile foragers that are most successful in obtaining larger sized fishes (Ogden et al. 1976) or highly concentrated fishes (Kahl 1964). Floodplain inundation followed by a dry down event will make fish accessible to foraging Wood Storks. Increased density will follow the first drydown event on the floodplain.

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